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DISEASE AND SIN



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Biology teaches us that from the beginning the evolution of life has been dominated by the two fundamental necessities or laws, that of nutrition and that of reproduction. Every organism that has lived has done so by the instant and constant care of the body, a fact summed up in the word nutrition, and every one that has attained maturity has also been the slave of the reproductive instinct. Hunger and love have ruled all, and they still control each of us. At a stage of human evolution when consciousness and self-consciousness arose, their first product was conscience: men began to differentiate between right and wrong. Religion and ethics were the results; states of mind and actions were good or evil, either toward God, or toward man. What was right was called good; what was wrong was called evil; or, in one sharp, awful word, sin. Whatever cosmogony, whatever branch of anthropologic science we study, we find this fateful word, sin, is ever present; attention to it is the decisive and ordering condition of social evolution. Every savage of the present or past, every child we know, every holy book, ethnic or Christian, is but an illustration of this truth. In none is it so plain as in those Jewish and Christian summaries of experience, the Old and the New Testaments. Adam and Eve attained both consciousness and conscience through sin, that is, doing the evil thing; Cain and all the rest of us have repeated the history; we are still hungering, loving, and working to satisfy hunger and love—and we are all still sinning!

But what is sin? Religion and the religious books say it is disobedience to the command of God, and that is true enough, because God will only order that which is right. But science has shown us that we understand a product of evolution only when we search out its origin and history. If we do this as regards sin, we learn that in all essentials the "commands of God" are the lessons which wise and good men draw from their observations of life. The evolution or incarnation process, every human life, indeed, is an experiment in living. Self-consciousness, conscience, wisdom, ethics, are the epitomes of these lessons of experience. Whether God-given or man-learned, they represent what we have gleaned from the experience of others and of ourselves. Sin is the thing we and others have found should not be done. To be sure we have, each of us, to relearn the lesson *de novo*. Like the scapegrace son, we answer the transmitted advice of the past with an eager protest that we will not profit by the experience of our fathers, and that we must have the experience ourselves. We succeed admirably in this, and also in sin's inevitable consequence, suffering. The recognition of sin seems, therefore, to be but the gathered lesson of experience; it is drawn from the observation of the simple fact that sin brings suffering, whether the command of God, or the demand of social evolution, whether religious or ethical, matters not, and indeed, is only the obverse and reverse of one fact.

There is a tendency, and indeed a downright dogmatism on the part of materialistic medical scientists to reduce all mentality and especially immorality to purely physical origins. "Stigmata of degeneration" and "neuroses" are the terms applied to every abnormal characteristic with glib self-satisfaction and with the evi-

dent purpose of implying the nonexistence of anything psychic as preceding and causative of physical ills. All functional disease is organic if we could discover the pathology. This is, of course, as unscientific as it is silly. There are plainly two differing and different elements in man, the psychic and the physic, and abnormalism in either may be independent and primal, and it may be causative of abnormalism of evil in the domain of the other. To demand or attempt proof of this duality and interaction of man's nature is as useless for those who ask it cynically as for those who observe it daily. It is self-evident for those who are not wilfully blind, and the wilfully blind furnish the demonstration in themselves of the domination of mind over matter.

My special thesis is that this experience-derived law of sin has arisen very largely out of hygienic and physiologic experience, and that its present validity is, in a broad meaning of the word, medical. The punishment of sin has always been primarily and largely a punishment of the flesh, the suffering has been essentially physical, and secondarily psychical. The very pathos and tragedy of the ideal of religion and ethics has been in the endeavor to arouse in the mind of the sinner his accountability for the sufferings of others. The strain of beneficent science is still to convince him that his sin not only curses himself, not only the third and fourth generations, but all the present world and all the coming generations. Religion and medical science both recognize the truth that to prevent sin and disease is the fundamental duty, and that to do this the vicarious atonement of the reformer and of the disease-preventer is necessary. All scientists who have renounced selfish aims to discover the laws of life and disease, all good physicians who have labored to prevent future physiologic evil, belong to the same noble band of vicarious sufferers and atoners in which are the religious and ethical teachers of the world. The difference is that we better than they see the mechanism which begat the conception of sin, and better than they the method whereby the results of sin are worked out into disease and suffering. May we say, also, that more effectively we are struggling to stop both the sin and the suffering? Preaching and prophesying and warning for thousands of years did not effect what medical and sanitary science has done in 200 years—*i. e.*, doubled the length of human life.

Note, historically, that in the record we best know, the condensed experience of the ages before writing began is conveyed in the astonishingly accurate allegory of the physiologic sin and the sexual consciousness of Adam and Eve, followed by breadwinning labor. Knowledge of good and evil could not be prevented even by God, and the age of innocence ended. There began the work, the sin, the disease, and the suffering of all after-ages, until to the childlike antediluvian mind the only way out of the ingravescent horror appeared to be the deluge. Alas, even that gave no relief; and no relief has ever come until Preventive Medicine came, and we are now in the thick of the fight against sin and disease, but with the victory partly won.

*The Address in Medicine before the Wisconsin State Medical Society at its annual meeting, held June 26, 27, 28, at Waukesha, Wisconsin.

The relationship of sin and disease has been recognized by all great philosophic minds, but nowhere has it been so accurately expressed as in the trenchant words of Cotton Mather,¹ who speaks of disease as *Flagellum Dei pro peccatis mundi*. To those modern materialists, or atheists, and especially to the all-knowing agnostics, who misuse science for dogmatic purposes, this saying of Cotton Mather will seem beneath their scorn, because to their thinking there is neither sin nor God. They should go one step further and, with their allies, the unchristian unscientists, make an end on't by also denying the existence of disease and the world. It is an old trick of the mind to rid oneself of difficulties and responsibilities by denying the existence of facts. He who silences his conscience by denying sin, only adds another sin to his individual burden, and another sinner to the burden of the world. And he who sees no purposive intelligence behind biologic evolution is too poor an observer, too muddle-headed a scientist to parley with. He is proud of his own intellect, and he affects belief in the law of cause and effect, but how could his reason have been derived from an irrational source? Himself is a far better proof of his theory than is his logic!

Let us therefore assume as beyond discussion that atheism is unscientific, and that God lives, and that sin is opposing and not furthering his biologic work in the world. What follows? Crippling or extinction of the sinner by disease and death, the "scourges of God." But the flagellum-blows fall not only upon the sinners, but upon all those, innocent or not, who, bound up with them by fate, may repeat the offence, or who, less thoroughly than others, may help to carry on the mechanism of the evolution process by means of heredity, etc.

"Ihr führt ins Leben uns hinein
Ihr lässt den Armen Schuldig werden
Dann überlässt ihr ihn der Pein
Denn alle Schuld rächt sich auf Erden."

Hard as the law may be, it is nevertheless true. Not all the sick have been sinners—far from it—but all our pity for the innocent who suffer for the sins of the guilty must not blind us to the fact that where there is disease, suffering and untimely death, there the lines of causation, generally and most often completely, lead back to what in a large way we call sin. Nor must our pity lead us to charge the biologic law with injustice, because only thereby comes prevention and multiplication of the evil. Better the wretchedness of a few innocent than of many; better the temporary than the permanent and increasing reproduction of the evil. God is a true physician, working for final normality. He may cauterize in order to cure, and prefer amputation rather than necrosis. His patient is the entire future body and soul of humanity, not the individual members here and now existing.

The wise ones of the world, the philosophers, and the prophets, the leaders of men to better living, have been those who saw the far and subtle lines and laws of causation running back from disease and untimely death to the sources of ignorance (which is also sin), of selfishness and of wrongdoing. This is the text of all preaching and prophecy, the burthen of all tragedy, the plot of all literature.

And it is the heart of medicine! Let us consider a few illustrative examples.

The force of the reproductive instinct is not second, but is stronger than the law of self-preservation. Under given conditions the tree will commit suicide to ripen its seeds; the phosphates may be taken from the mother's bones to supply those of the fetus and the mother herself will choose the sacrifice of herself to save the life of her child. The perpetuation of the race is a primary concern of the divinity of biology. The care of the child demands the parent's attention and life-work.

This compels monogamy. Unchastity was thus the earliest of recognized sins, but until civilization multiplied the sin so enormously, syphilis and gonorrhea were not needed to teach the lesson with a fury adequate to the evil, and with a thoroughness which all physicians know.

"Since 1494," says Dr. Duncan Bulkley,² "syphilis has spread, until now, according to the best writers, there is hardly a portion of the inhabited globe where it does not exist with more or less virulence." It is stated that in Russia at least one-fourth of the inhabitants in some villages are infected, and all writers agree that it is mostly spread there in an innocent (*i. e.*, asexual) manner, mainly in family life, for prostitution is almost unknown in the villages. In Great Britain and Ireland it prevails widely in the great cities and ports. Dr. Holland, in 1854, estimated that at least one and a half million persons were infected annually in the United Kingdom. Japan and China are so full of it that Dr. Eldridge states that it is quite exceptional to meet a male Japanese who will not acknowledge that at some time he has had syphilis, and in the French Hospital at Tien-Tsin about 30% of all cases were of this disease. Dr. Sturgis believes there are fully 50,000 new infections in New York City annually, and the statistics compiled by the American Dermatologic Association indicate fully 11.5% of all skin diseases as undoubtedly syphilitic.

Dr. S. D. Gross* said: "It would be a matter of deep interest and, in a practical way, of the greatest possible value, if we could ascertain even approximately the extent of syphilis in our cities and larger towns; but, for such a decision there are, unfortunately, too few data. Certain it is that it is of gigantic proportions; that it exists in many of the best and noblest families of the land; that since the establishment of railroad travel it has penetrated every rural district, and that it is poisoning, and slowly but surely undermining, the very foundations and fountains of life in every direction, sowing the seeds of death among our people and gradually deteriorating the national health." Again, "When a pestilence, *e. g.*, smallpox or cholera, breaks out in a community and threatens to decimate its population, every man's fears are at once aroused and steps taken to counteract its progress; . . . but here is a disease a thousand times worse than the deadliest epidemic, doing its work slowly and, as it were, in disguise and darkness, ruining entire families, destroying many of our best men and women, and laying the foundation of untold misery, wretchedness and woe, not infrequently extending through several generations."

At the date of his paper (1874) Dr. Gross estimated that more than 1 out of every 20 of our population was infected with syphilis.

Dr. S. T. Armstrong³ says there were 1,742 males over 5 years of age that died from syphilis in England from 1880 to 1890. Military statistics have shown that about $\frac{1}{10}$ of 1% of those affected with syphilis die therefrom; so that during the decade mentioned there were probably 1,742,000 males affected by syphilis, or about 175,000 annually.⁴

In his Dictionary of Statistics, Mulhall estimates the number of soldiers in European hospitals sick with syphilis as ranging between 7% and 43%, and averaging 19%. In the different countries the numbers vary from 54 to 333 per 1,000, with an average of 140, or 14%.

Sir Charles Cameron writes⁵:

"Our soldiers in India suffer terribly from venereal disease. For some years past one man out of every two has been admitted to the hospital with some venereal trouble, syphilis and gonorrhœa being about evenly divided. At Madras the admissions from these diseases were in the ratio of 739 per 1,000 men. It is terrible to speculate upon the amount of syphilis poison our young and mostly unmarried soldiers import into the United

*Syphilis in its Relation to the Public Health, read before the American Medical Association, June 3, 1874.

Kingdom from India, and how much of this virus will circulate in the blood of unborn generations."

A competent observer⁶ specially commissioned for the purpose of investigating the subject, writes :

"During the time of the American occupation about 60,000 sick soldiers have been treated in all the army hospitals in the Philippines. Of these, about 10,000 were cases of venereal diseases. When these thousands of diseased and demoralized soldiers return to America to draw life pensions and marry innocent girls, the vengeance of violated law (sin) will fall heavily upon the American people.

"There were but 3 saloons in Manila when the American troops took possession of the city.⁷ There are today 1,109 places in the city of Manila where intoxicating liquor is sold openly and publicly, not counting the hundreds of 'blind pigs.' With the advent of the American troops there came abandoned women from every corner of the earth." H. M. Neuans,⁸ who organized the Purity Society of India, and who has made an intelligent study of the conditions, says that "during the first year of the American occupation 800 prostitutes came to Manila."

It is only too plain, varying Krafft-Ebing's epigram, that the inevitable concomitant of civilization is syphilization.

But gonorrhea is at present being recognized as an equal or greater evil by all competent observers. Hyde and Montgomery in their work on venereal diseases say that gonorrhea and its complications have a greater mortality than syphilis, and Moyer⁹ writes :

"Since the gonococcus has been isolated and cultivated it has been found that general infections are frequently caused by this organism. Pleurisy, meningitis, myocarditis and peritonitis, and of late a gonococcemia have all been identified. So that gonorrhea is not a purely local disorder."

Please note that in the tables of mortality, of which I shall later quote several, there is not a word as to syphilis, gonorrhea, or alcoholism. The fact illustrates the crudity, even stupidity, of some of our statistics. These highly fatal diseases escape blame for death and suffering because men do not study the real and secondary causes, only the immediate and direct ones. Eye-strain is another example of a similar kind.

In reply to the question asked by letter of the most prominent American and foreign gynecologists as to the percentage of pelvic inflammations traceable to gonococcal infection it was shown* that the reports of 24 prominent workers indicated no less than 41% of such disorders as distinctly secondary to supposedly cured male gonorrhea.†

As to the extent to which sterility is due to gonococcal infection the estimated percentage by the same workers is 42%.‡

Hirst and Robb, too, regard sterility as the rule where infection has occurred; Huniston and Kreutzmann say that sterility results in every case where the ovaries or tubes are attacked, and "Czerny believes that fully 50% of all sterility is due to the husband's gonorrhea."

*Report of the Committee on State Medicine of the American Medical Association appointed to inquire whether and when the gonorrhoeic may be permitted to marry.

†The following are the exact figures:

Hermiston.....	90%	Frederick.....	75%
Jos. Price (1,000 sections).....	90	Laphorn Smith.....	60
Boldt.....	8	Stone.....	60
Skene.....	10	Baldwin.....	60
Robb.....	10	Watkins.....	50
Eastmann.....	10	Lawrence.....	50
Bovée.....	10	Ross.....	50
Dunn's private work.....	10	Noble.....	50
Jacobs, 5,000 private cases.....	12	Lanphear.....	25
Jacobs, 7,000 hospital cases.....	18	Kreutzmann.....	33
Dunn (hospital work).....	45	Baldy.....	33
Pozzi.....	75	Grandier.....	20
Dunn.....	3%	Ross.....	40%
Laphorn Smith.....	12	Stone.....	50
Jacobs.....	21	Lanphear.....	50
Skene.....	33	Price.....	50
Grandier.....	33	Frederick.....	50
Boldt.....	33	Mann.....	50
Eastmann.....	75	Noble.....	66
Bovée.....	40	Baldwin.....	75

And what a disease is prostitution itself!*

The most important of the conclusions reached by Dr. Sanger in his study of prostitution in New York City are:¹⁰

1. There are 6,000 public prostitutes in New York City (this was in 1860). In 1897 there were 30,000, according to Dr. Sturgis,¹¹ and the number has recently been roughly estimated at between 40,000 and 50,000.

2. The majority of these are from 15 to 25 years old.

3. Three-eighths of them are born in the United States.

4. Education is at a very low standard among them.

5. One-fifth are married.

6. One-half of them have given birth to children, and more than half the children so born are illegitimate.

7. The ratio of mortality among the children of prostitutes is 4 times greater than the ordinary ratio among New York children.

8. The average duration of a prostitute's life of abandonment is 4 years.

9. Nearly half of these women in New York City admit that they are, or have been, sufferers from syphilis.

10. Six-sevenths of them drink intoxicating liquors to a greater or less extent.

11. A capital of nearly \$4,000,000 is invested in the business of prostitution, and the annual expenditure in this traffic is more than \$7,000,000. (If these were the figures for 6,000 prostitutes, they cannot now be much less than \$25,000,000 and \$50,000,000, respectively.)†

It is plain that all this horror of syphilis, gonorrhea and prostitution would cease with the cessation of unchastity. It by no means follows that we should aim at prohibition measures. We cannot produce absolute morality by law. The prohibitionist, sincere indeed though he or she may be, is the enemy of real reform and true progress. We must attack the origins of the evil, and secure a little prevention here, a throttling there, and a general education everywhere. If, as a little example, we encourage the vicious drama, and the debauching "shows" supplied by many traveling troupes, we encourage the hideous license exhibited by the thousands thus supported by us. If we do nothing for tenement house reform ‡ we allow the drift into all the sin and disease encouraged by overcrowding.

*"There has arisen in society a figure which is certainly the most mournful and in some respects the most awful upon which the eye of the moralist can dwell—that unhappy being whose very name is a shame to speak, who counterfeits with a cold heart the transports of affection and submits herself as the passive instrument of lust; who is scorned and insulted as the vilest of her sex, and doomed for the most part to disease and abject wretchedness, and an early death—appears in every age as the perpetual symbol of degradation and the sinfulness of man. She remains, while creeds and civilizations rise and fall, the eternal priestess of humanity, blasted for the sins of the people."—Lecky's History of European Morals.

†Mulhall (*Dictionary of Statistics, 1893*) thus estimates the number of prostitutes in various cities:

London.....	31,800
Paris.....	26,900
Berlin.....	27,300
Lyons.....	5,520
Marseilles.....	4,080
Bordeaux.....	2,610

According to the *Dictionnaire des Sciences Médicales*, (Quoted by Mulhall) 100 prostitutes may be expected to give birth in their lives to 60 infants, while 100 married women may be expected to give birth to 480. This is of great significance as bearing on the population.

†The spread of prostitution among the tenement houses has grown rapidly in recent years. (Report New York Tenement House Commission, 1900.) Evidence has been submitted to the Commission to show that the protests of the dwellers in tenement houses immediately affected have been unheeded; and in spite of the best efforts of careful parents, the very house which they have selected because of its supposed freedom from this curse has often furnished the very temptation against which they have guarded their children in vain.

"The familiarity with vice, often in its most flagrant forms, possessed by young children, because of the condition just described, has profoundly impressed the Commission. Boys and young men become adept in immorality because of the constant temptation almost at their own bedroom doors. From the statements of many in a position to know the facts, we are led to believe that more young girls have been started in recent years upon a life of immorality because of tenement house associations than by all other means combined that minister to this traffic."

"While there is no other American city with such tenement house problems as New York City, each large municipality has its own housing problem."

Undoubtedly the spread of these diseases may be prevented by proper legal measures of license, registration, and sanitary inspection. We must exert a continuous and clear-headed effort to these ends despite the frantic screams of misguided sentimentalists, who act without intellect and without study of facts.*

If we study the subject of alcoholism we find the same lessons appearing. According to Mulhall the world's expenditure for alcoholic drinks as long ago as 1896 was \$2,445,000,000, and the average annual number of gallons of liquors consumed in Europe, United States, Canada and Australia was 7,496,000,000, or an equivalent of 778,000,000 of pure alcohol. There were in 1895, in the world 42,988 breweries and distilleries. *The Statistician and Economist* (1899-1900) estimates that in the United States in the last 10 years, there have been consumed 14,950,766,330 gallons.

The United States annual drink bill for 1900 is estimated (from the Annual Statistic Abstract of the United States) by the *American Grocer* (April 13, 1901) at \$1,059,563,787.00, and by the *New Voice* (April 13, 1901) at \$1,172,493,445.00.†

The total capital invested in the liquor traffic in 1896 was \$957,000,000. Of proprietors of establishments there were 191,500, and of employes 241,555. The total number of people engaged in the traffic, 364,000. If we assume that each of these breadwinners maintains an average family of 4 beside himself, we have a sum total of over 1,800,000 persons deriving their support directly from the liquor traffic. The question is whether all this wealth and activity constitute a real addition to the economic power of the country. Whether alcohol is a

* In re the regulation of prostitution by legislative enactment (embracing registration, licensing and sanitary inspection) Sanger, (History of Prostitution, 1897) says:

"A law (drafted upon the lines of that in operation in Paris) was enacted by the Missouri Legislature, the object of which was to bring and keep under control prostitution in St. Louis. This law remained upon the statute books only about a year—truly a very short period and yet sufficiently long to test, in a measure, the results of its operation.

"Its repeal" (to quote a St. Louis journalist, The Missouri Civil Law, *Morning Advertiser*, January 12, 1895) "was the result, not of any failure of the measure to accomplish the wholesome end for which it was enacted, but was in obedience to a morbid sentiment begotten of absolute ignorance of the subject."

"The city of St. Louis was divided into 3 districts in charge of each of which was a physician of recognized standing who made inspections weekly. The fees accruing from this work found their way, largely, directly back to the maintenance of a hospital for these women, where, under good environment, some of them were reclaimed for society." The above writer further says, "The law had been in operation but a short time when its salutary effects were clearly evident. Primarily, the evil itself was lessened; but of more consequence and value to the city was the marked decrease of physical ailments invariably attendant upon this vice." The Missouri *Medical Record*, May 15, 1874, said editorially a few weeks after the repeal of this law, "Not only had the system operated most beneficially in the interests of the community, but so fully aware of the physical advantages of the law had the women themselves become that not a few continued to voluntarily subject themselves to inspection at their own expense, even after the abrogation of the law. The incidents attending the repeal of the law were dramatic in the extreme and show plainly to what ends misguided otherwise good people will go. Throughout the State there was an uprising against what was regarded as the licensing of vice, and the lobbies of both legislative houses were taken complete possession of by the clergy of the various denominations. A petition praying for repeal, signed by more than 100,000 'good' people was presented. The document was cumbersome. A wheelbarrow decorated with white ribbons and accompanied by a group of innocent young girls attired in white was brought into service, and on it the gigantic emphatic protest against the licensing of vice was wheeled up to the clerk's desk to be read. There was not a vote from any city member for the repeal of the law, and not one vote from any country member against it. Courageous indeed would have been the country member who would have voted for it." Of course, there were counterpetitions from the cities. The law received the almost unqualified endorsement of the medical men, as it received almost as unanimously the condemnation of the clergy.

Instead of the legal regulation of prostitution Mayer advocates universal circumcision, estimating that it will lessen the frequency of venereal diseases from 50 to 75%. Dr. Prince A. Morrow says (Sanger's History of Prostitution, I. c.), "The regulation of prostitution and the control of syphilis are but convertible terms."

* The latter paper submits the following interesting figures:

Total exports merchandise to June 30, 1900.....	\$1,394,483,082
Total railway receipts to June 30, 1900.....	1,336,096,379
Expenditures for liquor.....	\$1,172,493,445
Public debt.....	1,107,711,258
World's production gold (1899).....	306,584,900
World's production silver (1899).....	216,209,100

The farm produce consumed in the production of various kinds of liquors in 1896 was about 58,000,000 bushels in grain alone. This included about 10% of the total consumption of corn, 11.2% of the total rye consumed.—(Twelfth Annual Report, Federal Department of Labor.)

food or a poison is also not an absolutely settled question. However, whatever its effects in small doses may be, it is generally agreed that in excess it diminishes the capacity for labor and leads to poverty and crime.

Looking simply at the burden entailed upon the public, it naturally divides itself into two general classes:

1. That burden occasioned by poverty.
2. That burden occasioned by crime.¹²

Mulhall finds that during the civil war the deaths from drink were 35 per 100,000 men; 150 out of every 100,000 men were sent to the hospital for sickness due to alcoholism. In the British army the deaths from drink are 181 per 100,000 men, and 3,620 out of every 100,000 men are sent to the hospital for diseases directly or indirectly due to alcohol.

In the United Kingdom, while the average mortality rate has fallen from 22.5% to 17.2% per 1,000 since 1872, the rate of death from alcoholism has increased from 45 per 1,000,000 in 1875, to 77 per 1,000,000 in 1897.

Mulhall finds the yearly average per 1,000,000 of deaths from alcoholism to be:

England	63	Prussia	23
Scotland	54	Belgium	53
Ireland	30	Sweden	21

The total alcoholic deaths per year are, for—

England	1,405	Switzerland	244
Scotland	230	Sweden	502
Ireland	280	Norway	72
France	418		
Belgium	456	Total	4,346
Italy	709		

Alcohol is, as we all know, the chief cause of crime. In 1897 Mulhall states that the total convictions in the civilized world were 3,110,482.* According to the report of the Royal Commission of Scotland, 72% of all crime proceeded directly or indirectly from drink.

"France," say M. Bertillon and M. Fouquier,¹³ "is literally being killed by alcohol." They trace to this cause the declining population. Forel† shows that in men and women alcoholism (present in most cases) tremendously increases the infection of gonorrhea and syphilis, because it increases sexual desire, blunts the moral sense, and lowers the physiologic power of resistance to the virus.

Of the poverty which comes under the view of charity organizations, 25% can be traced to liquor. Of the poverty found in almshouses, 37% is traceable to liquor. In the case of destitute children, not less than 45% was found to be due to liquor either on the part of parents or guardians. These figures are based upon investigations¹⁴ and reports from 33 charity organizations, 11 children's aid societies, 60 almshouses and 17 prisons and reformatories.

The investigation¹⁵ further included 13,402 convicts (17 prisons), and intemperance figured as one of the causes

* Convictions in 1897 :

United Kingdom.....	11,745	Switzerland.....	3,580
France.....	221,770	Finland.....	17,450
Germany.....	451,200	United States.....	82,330
Austria.....	562,900	Australia.....	111,870
Hungary.....	89,340	Canada.....	37,280
Italy.....	360,290	India.....	845,000
Norway.....	31,770	Cape Colony.....	51,210
Denmark.....	3,897	Algeria.....	60,660
Holland.....	104,390	Jamaica.....	15,890
Belgium.....	44,910		
Total.....			3,110,482

† Commenting on the statistics of the French census for 1899, M. Bertillon declares (*Économiste Français*, quoted in *Literary Digest*, February 23, 1901) that they show France to be in the position of a man dying under the influence of chloroform. "It is painless, but it is death, nevertheless." The figures show a stationary population, and if the present tendency continues unchecked, an actual decrease is feared. Another writer (Henri Fouquier, in *Paris Matin*, quoted in *Literary Digest*, February 23, 1901) declares that alcoholism is the national enemy, the real cause of French decline in population, physical vigor and enterprise. "It is alcohol in all its forms which makes the veritable maniacs who live among us so numerous that they have ceased to attract attention, except when their crimes take an unusual shape. Among the lower classes there is at least 1 alcoholie for every 10 persons. Whether it be hereditary or acquired, a weakened nervous system has become so general in our race that the evil of alcoholism may produce its ravages without the victims even suspecting its influence upon them."

in 50%, as a first cause in 31%, and as the sole cause in 16% of all cases.

For foreign countries the figures are: Russia, 25%, Austria 34.6%, Germany 44.8%, Italy 50%, England 52.9%, Scandinavia 56.2%, Ireland 56.7%, Canada 56.7%, Scotland 58.3%.

In speaking of the increase in the number of cases admitted during 1900 to the Royal Edinburgh Asylum,¹⁶ Dr. Clouston, the superintendent, says the conclusion is unavoidable that the unusual increase in admissions was due to a large extent to alcoholic immoderation during times of prosperity, attended with brisk trade and high wages. The number of alcoholic insane admitted to the asylum has increased from 15½% in the period from 1874 to 1888 to 21½% in the period 1889 to 1898. Of 472 cases received in 1900, drink was either the sole or the main contributing cause in 115, or about 25% of all. Dr. Clouston notes the more significant fact that for every individual man in whom excessive drinking causes absolute insanity, there are 20 in whom it injures the brain, blunts the moral sense, and lessens the capacity for work in varying degree. He rightly contends that "it is an irrational application of the doctrine of liberty to grant to every man the inalienable right to render himself a burden to others and a source of degradation and danger to the community."

As with venereal diseases, so with alcoholism, in our new national expansion, we have a frightful responsibility. There can be little doubt that we are teaching the previously temperate Filipinos vices which do disgrace their semi-civilization.

How may we as physicians prevent the evils, physical and mental, of alcoholism? Again, as in syphilis, gonorrhea, etc., I think the answer must be, not by radical measures, not by enacting laws in which 75% of the people do not believe, and will not obey—that is to say, not by prohibition. Prohibition breeds intemperance. In the States where this has been tried, it has not lessened the evil; it has been a hypocritical failure, and other evils have been created. Exclusive of the prescriptions of physicians and the sales by legitimate drug stores, the inhabitants of one small New England prohibition State last year demanded over 3,000,000 doses of opium.

By the punishment of drunkenness; by improvements in tenement-houses, and in the lives of the people living in them; by satisfying the thirst for fellowship which perpetuates the saloon; by the recently inaugurated English reform of the liquor saloons, or "temperance trusts," by philanthropic capitalists;¹⁷ and, lastly, by a steady education of our patients and the public toward self-control and temperance, we may in the future lessen the evils of alcoholism, which at present are so painfully evident.

Suicide is another cause of increased mortality, wholly due to sin. In Europe the mean annual rate of suicides per million of population in the 10 years ending 1880 was 124; in 1888 the rate was 144. Not only is suicide increasing faster than the population, but the increase is greatest in the countries of greatest educational pressure.*

The total number of criminals at large in the United States has been estimated † at 500,000, of which at least one-half are habitual criminals, making their living by crime. The number of prisoners in 1890 † was 82,329. The juvenile delinquents numbered 14,846. The criminal classes cost the country over \$600,000,000 a year.

* Reginald A. Skelton (*The Nineteenth Century*, September, 1900): "We are in the presence of a growing sense of malaise. It is a disheartening thing to have to acknowledge that, after the wonderful progress of mankind during the last 50 or 60 years, the individual probably finds life less enjoyable and more difficult than before. But civilization has multiplied our wants and desires more rapidly than it has supplied the means of satisfying them."

† Eugene Smith, Congress National Prison Association, Cleveland, 1900.

‡ U. S. Census Report, 92% males, 8% females, 68% white, 32% colored.

The number of homicides in the United States is about 10,000 a year.

Among the causes of death and sickness, and of the expense of these, war and militarism must not be forgotten. The Boer war costs the English people over \$500,000 daily. President Eliot, of Harvard College, says that the amount doled out to our Agricultural Department is about equal to the cost of the war with Spain for 1 day, while that given the Geologic Survey is less than the cost of 6 hours of that war. We might add that the help offered preventive medicine each year would perhaps equal the war-cost of a few seconds! In Austria, says J. S. Bloch,¹⁸ 4½ times as much money was spent on militarism as on popular education; in Italy 8 times; in France 5 times, and in Russia 12 times as much.

The United States pays each year for its army and navy \$253,696,870, and for pensions over \$160,000,000, making our total annual military budget about \$400,000,000. The total annual cost of the armies of the civilized world is something like \$1,200,000,000. Bloch estimates the cost of the world's wars during the last 50 years (excluding the Boer and the Spanish-American wars) at \$6,106,800,000, and Mulhall says the wars of 90 years have cost over \$15,000,000,000 and 4,470,000 lives. In our Civil War there were enrolled 2,252,000 men in the Northern army, the average strength being 431,000; the average number of men constantly in hospital was 37,000, or 9%. The pernicious influence of militarism upon its own people is illustrated in France by the Dreyfus trial, and everywhere by the increase of debauchery and venereal disease, but it is particularly manifest in the sociology of tropical conquest. The horribleness of the recent crimes of the "civilized" soldiers in China is not known. "It is doubtful," says M. Leclerc,¹⁹ "whether the victor does not suffer more than the victim." It is his judgment that under modern conditions conquest means decadence of the conquering race, and demoralization and ruin of the conquered. Commenting upon this the *New York Evening Post* (November 6, 1900) says:—

"This is a cold douche for science to pour upon our hot and heady imperialism, but the truth must be told. M. Leclerc masterfully points out the subtle interchange—a sort of moral osmosis—which goes on between the higher conquering race and the conquered. It is, in general, a give-and-take of what is bad in each. It is one of the terrible forms of revenge which the conquered take. They perish, but in their death they poison the life of their conquerors. The history of tropical colonization is one long *vae victoribus*."

So far we have been considering only those sins and diseases the entire evil products of which would be abrogated if men did not break those laws of which all know, and which all acknowledge to be good. One hundred percentum of the effects of unchastity, syphilis, gonorrhea, alcoholism, suicide, homicide, and war, are evil. I know there are some that will demur as to militarism, but either they are the devil's advocates, paid for service, or they have not studied the matter with sufficient thoroughness.

If I do not weary you, I wish now to notice more briefly the class of evils and diseases which are only partially due to moral obliquity.

In 1900 there were, in England, 4,308 accidental deaths, and 89,042 wounded among industrial workers. In the United States the only similar statistics we have are of those killed and wounded by railways. In 1900 the numbers were 7,123 and 44,620, respectively. If these men had been sacrificed in a battle, or by an earthquake, how we would have been shocked; and yet, few of us noted the news item. How many of the cases were unnecessary? How many were due to greed and obvious wrong?

Mulhall estimates the number of paupers in 1888 in 9 European countries at 2,273,000, and the cost of their

maintenance at about \$100,000,000. In 1898 the cost to Great Britain was \$65,099,740. Our own paupers numbered in 1890, 73,045. What portion of pauperism is due to immoral conduct and character, it would be hard to say, but in this country I should be inclined to put it close to 100%.

We also had with us in 1890, 106,485 insane, 95,609 feeble-minded, and 50,568 blind. In England in 1899²⁰ there were 105,086 lunatics, or one in every 302 inhabitants. What estimates that intemperance accounts for over 30%, and heredity for 46%, so that 76% of the total number exist because known preventive measures were not in force. Dr. H. W. Coe²¹ says that not less than 50% of the insane should never have been born, "and for this mistake physicians are, to a certain extent, responsible." The meaning is not that the delivery should have been prevented, but that the conception should never have been possible because of the interdiction of the marriage of the unfit.

I have several times spoken of our national responsibility. One more instance would be that of our blind partisanship, and our morbid indifference to our duties as citizens, whereby we turn over to corrupt politicians the greatest social mechanism for good or evil, our executive and legislative control of cities and, indeed, of the whole country. In *Harper's Weekly* of October 4, 1900, Mr. Franklin Matthews gives one instance out of many that might be brought, and shows us "The Cost in Flesh and Blood" of one corrupt political organization.

Of the increasing deathrate, Mr. Matthews says: "Since the beginning of Mayor Strong's administration the New York City deathrate has been going down—swiftly in the days of the Strong regime; very slowly since the resumption of Tammany rule. Good pavements and fair street cleaning have done it." But the above statement applies to the whole city. "How about the Seventh, Tenth, and Seventeenth wards, where the great tenement house population lives? The last figures from the present Board of Health, now under Tammany control show an increase in the deathrate of the Seventh ward of 2.21%; in the Tenth ward of 2.35%; and in the Seventeenth of 1.39%." Nothing points stronger the cost in flesh and blood of sinful abuse of public power than the significant showing that the burials in Potter's field have doubled in the 2 years of restored Tammany misrule. Lastly, the total number of arrests of women for disorderly conduct for 4 years was, 1896, 13,075; 1897, 12,415; 1898, 14,512; 1899, 17,255. But all these figures are only side issues compared with the statements about the depravity and corruption of the children of the slums and the wholesale importation of white and colored women to the city for immoral purposes, and all in order that the Tammany chests may profit by the blackmail levied upon all sorts of vice. These are hard things to read, and still harder to write about, but every man should insist upon his neighbor's knowing under what conditions his children must grow up to womanhood and manhood.

As a good mugwump I must protest that we take no unction to our Republican souls. We are as badly off in Philadelphia, and in many other stalwart strongholds, "sound in the faith, but dead in sin." From recent events in Pennsylvania, I should say we are not only dead in sin but putrid.

Of the 70,000,000 people now living in the United States, over 10,000,000 will die of tuberculosis.* Osler says that 1,200,000 of our people have the disease at any

one time. One-third of the deaths occurring between the ages of 15 and 60 are said to be due to it.*

There are annually in New York City about 9,000 deaths due to pulmonary tuberculosis, and about 4 times this number suffering from the disease, $\frac{1}{4}$ of whom are living in the tenement house districts. The actual economic value of these deaths and of the sickness is over \$8,000,000 per annum.†

Pneumonia is now killing more of our citizens than pulmonary tuberculosis, so that we may say that nearly one-half of our mortality is due to diseases of the lungs. The rage for wealth, luxury, and city life, occupation-diseases,‡ and the breathing of dust, the deadly tenement house, the insufficient exercise of the lungs and oxygenation of the blood, all combine to warrant us in largely charging to sin this awful mortality. Is it too high to say that from 50 to 75% of these deaths and of this illness is preventable? I think not. The human body was developed through incalculable ages by means of open air and exercise. Disease is not needed to demonstrate the wrong of suddenly, *i. e.*, within a hundred years or more, shutting men and women up in houses and forcing them into sedentary occupations. There is enough land and opportunity, if both were only allowed and utilized, to give every human being a livelihood that will permit life of a normal length. Believing as I do that with proper hygienic living, especially in youth, with right lung-expansion and development, no person need have pulmonary disease, I must express my conviction that had Koch succeeded in discovering a cure for tuberculosis, he would have harmed the human race more than all diseases combined. Had tuberculin possessed the power he fondly and foolishly hoped to find, the race would quickly have degenerated into appalling weakness and morbidity. For of course the lungless would have bred the coming race, and imperfect oxygenation of the blood would have not alone chests contracted, but every other

* Tostivint and Remlinger (*Rev. d' Hyg.*, Paris, xxii, No. 9), have figured out the following statistics of tuberculosis mortality among different races:

Mussulman Arabs.....	11.3 per 1,000
Europeans.....	5.13 per 1,000
Jews.....	0.75 per 1,000

Race immunity may be excluded as between Arabs and Jews, as they are both Semitic. Their household methods however, are quite different. While among the Arabs and Europeans the houses are invariably *dry* swept, in Jewish homes, rich or poor, the floors, walls, staircases, etc., are moistened before being swept, or else cleaned with a wet cloth. To this latter fact the authors attribute the comparative rarity of tubercle among the Jews.

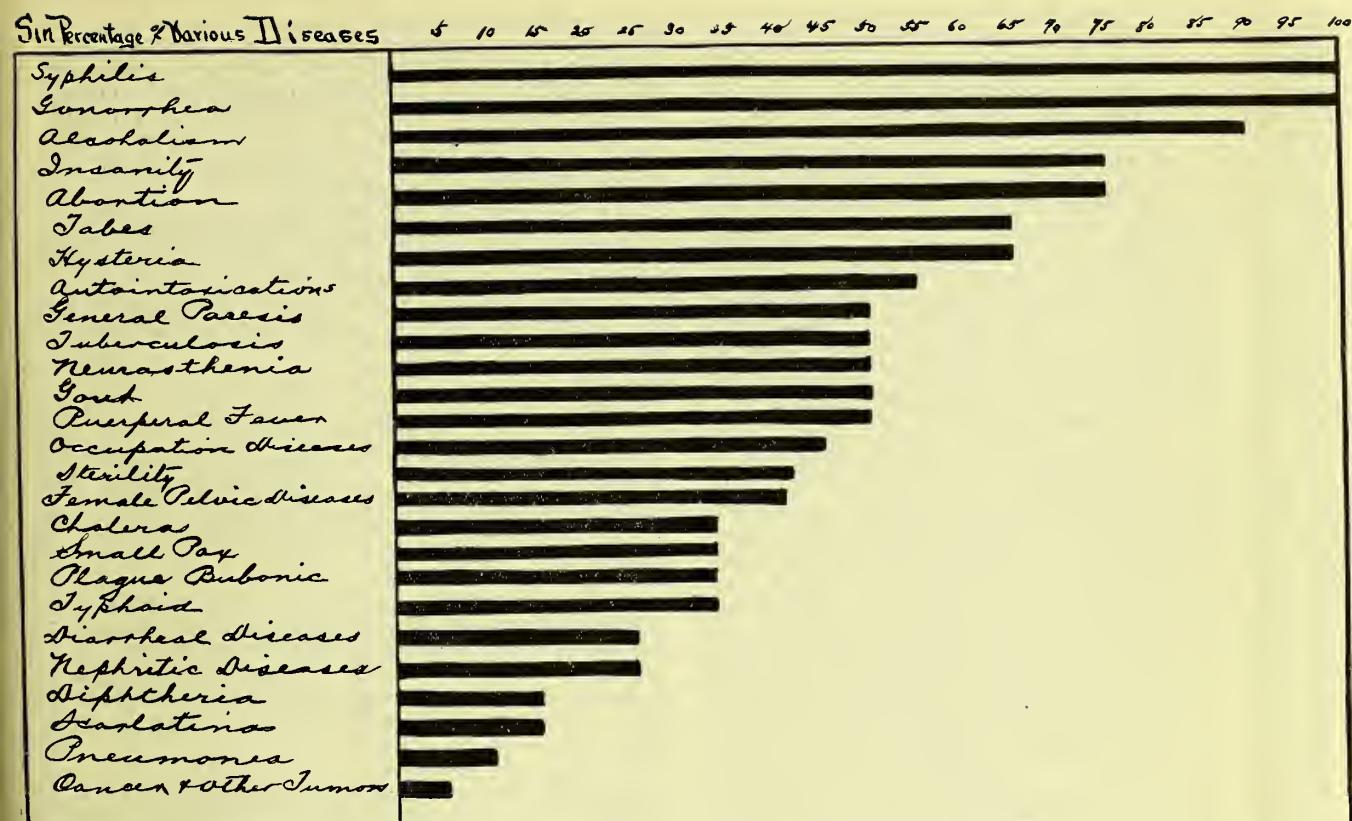
† It is not easy to place a money value upon human life, but according to one of the best authorities on this subject, the economic value of the individual is what he has cost his family, the community or the State for his living, development and education—the loan, as it were, made by society to the individual to enable him to reach the age when he can restore it by his labor. This average life value has been variously estimated by different economists in Europe at amounts ranging from \$750 to \$1,000. The latter is certainly not an overestimate for New York. Of the 8,000 deaths per annum in New York City, at least 7,300 of these (or about 91%) occur between the ages of 15 and 65 (the period of greatest productive capacity). With \$1,000 as an average life value there is here an actual loss yearly to New York City of \$7,300,000. Add to this the wages lost by tuberculous patients by sickness (\$985,500 yearly) and not counting other expenses connected with their illness and death, the total is \$8,285,500 levied annually in New York by this disease.

‡ As to the effects of breathing dust-laden air the relative mortality from tuberculosis and respiratory diseases, starting with farmers as a standard at 100, are shown in the following table:

Agriculturist.....	100	Chimney sweep.....	249
Ironstone miner.....	133	Stone quarrier.....	261
Carpenter.....	148	Zinc worker.....	266
Coal miner.....	166	Iron and steel manufacturer.....	292
Corn miller.....	166	Gunsmith.....	294
Baker (confectioner).....	177	Copper miner.....	307
Blacksmith.....	177	Copper worker.....	317
Wool manufacturer.....	202	Lead miner.....	319
Tin worker.....	204	Glass manufacturer.....	335
Carpet rug manufacturer.....	213	File maker.....	373
Bricklayer.....	215	Scissors maker.....	407
Cotton manufacturer.....	244	Potter.....	453
Lead worker.....	247		

Other occupation-diseases are writer's cramp and other similar neoplasms, lumpy jaw (actinomycosis) miner's lung (anthracosis), nystagmus and serpiginous ulcer of the cornea, phosphorous jaw, the injured and blinded eyes of metal and stone worker the amblyopia of oversea makers (from carbon disulfid fumes), lead palsy, caisson disease, sweat shop diseases (tuberculosis, headaches, neuralgias, glaucoma and cataract) and oyster shucker's keratitis or corneal ulcer.

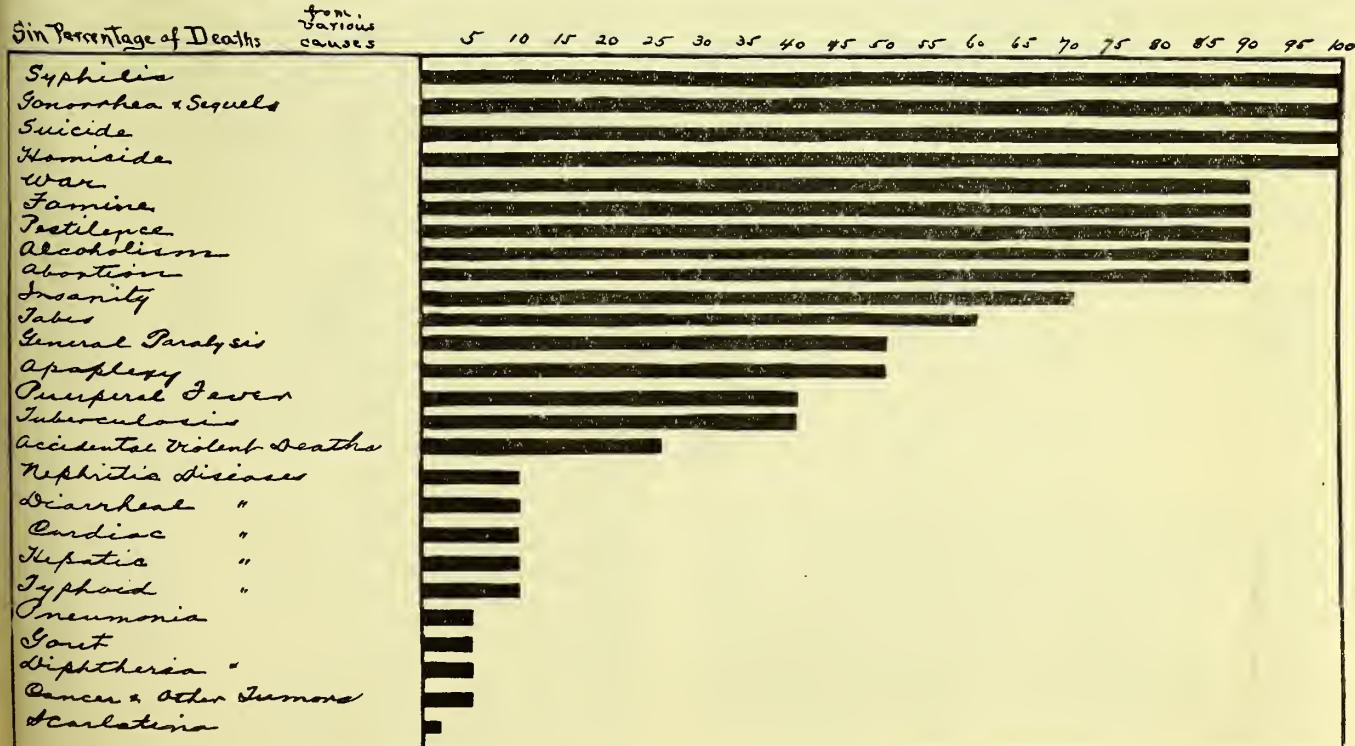
* The mortality due to tubercular disease still remains appallingly great. During 1896-7, 7.6% of the total English mortality was caused by tuberculosis, and 11.6% (that is to say 1 out of every 9 persons) by all tubercular diseases together. Further figures show that between the ages of 15 and 55—the most important working years of life—26.6% of the total deaths among males were caused by tuberculosis, and 28.9% by all tubercular diseases.—Newsholme (*Vital Statistics*, 1899).



organ and function of the body, not the least those powers we call mental and psychic. What a multitude of other diseases are also directly or indirectly traceable to the same source! It is not the comma-bacillus we need to kill but the nidus it finds in poor lungs. Nature is under the necessity of sacrificing both the poor lungs and their pitiable possessors. Civilization can only cure and prevent the disease by undoing the evil of nonventilation, overcrowding, indoor life, and nonexercise, and

by exercise and active labor developing the vitality and strength which successfully resist the tuberculous bacilli now and always in all our lungs, and preventing them from becoming pathogenic.

In the same way, should I take up each of the diseases or class of diseases from which the people suffer or die, it would be easy to point out the causal nexus with immorality, with ignorance (which is also sin), and with selfishness in its multitude of phases. This would tire



you, and would, fortunately, be unnecessary with an audience of experts as capable as I of tracing out these hidden lines of cause and effect. In general paralysis, tabes, abortion, apoplexy, puerperal fever, in diseases of the kidneys, stomach and intestines, heart and liver, in gout, and even in the acute infectious diseases, you know how sexual crime, improper food, alcohol, occupation, filth, overcrowding, self-indulgence, etc., play their parts. There is not a day passes with the active physician that these tragedies are not revealed to him, haunting him, if he has a sensitive and sympathetic soul, with eyes of poignant appeal, and the horror of helplessness.

In order to mass these facts together and to strike the eye and memory, I have prepared some crude tables, illustrating what, to my guessing, are the probable percentages of deaths and of diseases due directly or indirectly to what we may call sin. Of course they have no scientific value, and each one would, and may lengthen or shorten the lines, according to his judgment. I believe that in the interests of conservatism I have made many of them far too short.

Epitomizing the overlook we find that according to the best estimates,* the average length of human life in the sixteenth century was between 18 and 20 years. Today it is over 40 years. Since 1880 it has been lengthened by 6 years. From 1801 to 1835 the mortality of London was 29; at present it is between 17 and 19. To what is this tremendous improvement due, and how in the face of the increased mortality from certain diseases has the general betterment been brought about? The answer will reveal the relative functions and values of medicine, and of what is vaguely termed "civilization."

Undoubtedly the frightful mortality during the middle ages and up to recent times, was due to misgovernment and war, to famine, plague, yellow fever, malaria, and smallpox. Our influence in lessening war and misgovernment has been only indirect. Among other causes in abolishing the law of entail and in becoming such a diabolic *flagellum Dei* that Europe had to combine against him, Napoleon wittingly and unwittingly freed Europe and made modern liberty and civilization possible. Intercommunication is rapidly eliminating famine† as a cause of great mortality. The plague of the fourteenth century is said to have carried off over 24,000,000 people, and last year in India there were as many as 139,000 deaths from this disease. Our recent experience in San Francisco‡ has taught us, it is hoped, a needed lesson as to the public duty of cleanliness, honor, and publicity.

It is needless to say more, to an audience of physicians,

* By Professor Finkelnberg, of Bonn, quoted by Kober in his most noteworthy address before the American Medical Association, 1901. See AMERICAN MEDICINE, June 8, 1901.

† Walford catalogs 160 famines recorded since the eleventh century, occurring as follows:

England.....	57	France.....	10
Ireland.....	34	Germany.....	11
Scotland.....	12	Italy.....	36

Among those of modern times, the worst are:	Date.	Deaths.
England.....	1770	48,000
Ireland.....	1816-17	737,000
India.....	1846-7	1,009,000
India.....	1866	1,450,000
India.....	1877	500,000
China.....	1878	9,500,000
India.....	1896 etc.	5,000,000

‡ Judging from the mortality tables and the work of the Federal Commission, it seems extremely probable that though the first case of bubonic plague was discovered in San Francisco in March of 1900, plague has existed among the Chinese of that city for at least 2 or 3 years, possibly longer. A most important byproduct of this plague experience in San Francisco will be the elevation of the position of the really scientific medical men on the coast. Instead of being grateful that they had in their midst men of skill and training who could diagnose accurately the conditions existing, the press and many of the public vilified these men, clamored for their removal, and did all in their power to ruin their positions, and reputations. The report of the Federal Commission will tend to make Californians trust their own good men, and will lead them to hesitate in the future before taking the advice of the inexperienced, the charlatan, a corrupted press, or the professional politician. See *Journal American Medical Association* April 13, 1901.

as to smallpox,* yellow fever,† and malaria, than that so fast as the politicians, the quacks, the antivaccinationists, the antivivisectionists, and public ignorance, will permit us, our beneficent science is able, and will succeed in hunting these evils off the face of the earth. We are even willing to rid the antis themselves of these diseases—after they have duly illustrated in their own persons the folly of their creeds.

The mortality table is one rough measure of the evil. The deathrate is what science and civilization are laboring to lessen. The best statistics we can gather show that the diseases which directly kill are as follows:

Newsholme²² gives the following average deathrates for England, annually from 1891-95, per 1,000,000 persons living:

Smallpox	20	Other tuberculous diseases	660
Measles	408	Diabetes	69
Scarlet fever	182	Nervous diseases	2,288
Diphtheria	253	Circulatory diseases	1,677
Whoopingcough	398	Respiratory diseases	3,747
Typhus	4	Digestive diseases	1,116
Enteric fever	174	Urinary diseases	453
Continued fever	8	Puerperal fever	167
Diarrheal diseases	652	Violence	663
Cancer	712	All other causes	1,623
Tuberculosis	1,464		

In the United States, so far as we have approximately accurate registration, that is, for about 21,000,000 people, tuberculosis has been responsible for nearly 12% of all deaths, pneumonia and diarrheal diseases for about 8.5% each, diphtheria and croup, jointly, and enteric fever, 3%, measles, whooping cough and scarlet fever about 1% each.[†]

* During the Franco-Prussian War the Germans lost from smallpox but 263 men, while the French loss from this disease was 23,499, or almost 100 times as great as the German loss. The Germans were all revaccinated in the barracks on the outbreak of the war.

In the epidemic of 1881 the smallpox returns of Great Britain showed deaths per 1,000,000 inhabitants as follows:

	Not Vaccinated.	Vaccinated.	Difference.
London.....	90	3,350	35 to 1
England.....	98	4,380	44 to 1

Up to the present century the average smallpox mortality in Prussia was 3 per 1,000 population, with, of course, a much heavier percentage in time of epidemic. Since the time of compulsory vaccination the mortality has fallen to 0.03 per 1,000 population. The figures are almost the same for London in the corresponding periods. Schultz, basing his calculation on the statistics of the Imperial Health Bureau at Berlin, says that since 1869, vaccination has saved in Prussia alone at least 74,000 lives.

† In commenting on the report of the Yellow Fever Commission of the Liverpool School of Tropical Medicine, Professor Welch said (*Journal American Medical Association*, March 30, 1901): "Both Lazear, of the American, and Myers, of the English Yellow Fever Commission, have laid down their lives in the search for means of prevention (based upon better knowledge of causation) of one of the most baffling and terrible scourges of mankind. How much more glorious is the cause to which these bright lives were sacrificed than any for which nations are in arms today."

In the expedition to the West Indies in 1802 the French lost not less than 50,000 men from yellow fever.

‡ Another estimate is as follows: (Public Hygiene and State Medicine in the U. S., 1900, p. 21.)

Diseases.	Reported Cases.	Registered Deaths.	Fatality Percentage.
Smallpox.....	9,222	2,385	25.8%
Typhoid.....	69,758	13,284	19.0%
Diphtheria and croup.....	195,783	44,411	22.7%
Scarlet fever.....	117,847	9,211	7.2%
Measles.....	217,755	6,424	2.8%

In Paris, in 1897, (*Jour. d' Hyg.*, March 10, 1898) with a population of 2,529,405, the proportions of each disease per 1,000 deaths was as follows:

	Deaths.	Per 1,000.
Smallpox.....	12	0.34
Measles.....	823	8.56
Scarlet fever.....	59	2.38
Diphtheria and croup.....	291	5.92
Typhoid.....	241	4.92
Puerperal fever.....	255	6.95
Pulmonary tuberculosis.....	9,250	189.90
Other tubercular diseases.....	1,068	25.93
Apoplexy.....	2,227	48.64
Bronchitis and pneumonia.....	5,390	121.90
Heart disease.....	3,112	67.34
Diarrheal disease.....	2,904	68.10
Accidents.....	950	25.10
Suicides.....	876	18.62
Other causes.....	19,146	395.92
	46,804	1,000.00

From the Vital Statistics of Germany for 1895 (population 50,929,423)

We should mark well the fact that however true these statistics may be, they are comparatively meaningless for our present purpose. Our science has not yet advanced so far as to enable us to find out the primary, indirect and real causes of disease. We can do but little to making these figures "open their mouths and speak." Vital statistics have little significance unless we do so. It is, for instance, strange that while recognizing typhoid, pneumonia, tuberculosis, etc., as distinct diseases, there are others, such as alcoholism, syphilis, gonorrhea, homicide, suicide, etc., which are not recognized as such, but are hidden away under diseases of organs, either circulatory, respiratory, nervous, digestive or urinary, etc. Or take the awful infant mortality concealed under the term diarrheal diseases, it is largely sinful and obviable. Give the babies proper food and air and love and they would not die as they do. Thus the sin-caused diseases by some strange twist of the sin-shirking mind, are kept out of sight. But it is plain that even in those diseases apparently the least rooted in sin there is a large element of predisposition, heredity, improper nutrition, etc., chargeable to sinfulness. Especially does the large mantle of heredity cover a multitude of sins and of sinners. But as scientists, citizens, and moralists we are more interested in preventing than in curing. Diseases are the spearheads, the bullets, clubs and poisons, the instruments only, of causes and powers that wield and use them. Every one of these diseases is the poor tool of precedent forces, and some entirely, many largely, all partially, are the results of sin. I have known physicians who had no interest in and who sneered openly at the inethical causes of disease. They were plainly more absorbed in their private practise than in preventing disease. I have even known some who were glad to see the sin and the disease rampant because it made practise better. Quacks advertise relief of the effects of disease in order that the cause and the sin may work out their effects *ad infinitum*! In the term sin, besides alcoholism, crime, etc., I include, and justly, ignorance, poverty, greed, luxury, uncleanliness, overcrowding, political corruption, etc., etc. Simply as physicians we must work to cure and prevent disease. If, as we have seen, disease is always more or less dependent upon sin, we must in a scientific prophylaxis, try to stop the sin that partly or entirely generates or allows the disease. A small and simple example is that of pellagra. There are at least 150,000 sufferers from this disease due solely to extreme poverty and ignorance.*

Take as another the sweatshop evil. Cunningham²³ says: "The sweating system is that condition of labor by which a maximum amount of work possible per day is performed for a minimum sum, in the pursuit of which labor the ordinary rules of health and comfort are disregarded."

Nellie Mason Auten²⁴ in 34 sweatshops of Chicago,

we learn (American Year Book Med. and Surg., 1900. Medicine, p. 560.) that the deathrate per 1,000 was as follows:

Diarrheal diseases (including cholera infantum).....	26.14
Pulmonary tuberculosis.....	21.53
Pneumonia.....	13.27
Diphtheria.....	6.34
Whoopingcough.....	3.88
Measles.....	2.68
Suicide.....	2.06
Scarlet fever.....	1.64
Puerperal fever.....	1.29

Mortality rates per 1,000 in Italy for 1897 (Ibid):

Pneumonia.....	21.48
Tuberculosis.....	9.87
Cancer.....	5.09
Typhoid.....	4.96
Diphtheria.....	2.83
Whoopingcough.....	2.53
Measles.....	1.96
Scarlet fever.....	1.24
Smallpox.....	0.32

*In 1899 there were in Roumania 40,000 pellagrines, in Italy 94,400, and scattered throughout other Mediterranean countries 15,600, making a total of 150,000. These are the figures for 1899, which show a great increase over those of 1898, due probably to a poor crop in 1899. (Babes and Sion, Die Pellagra in Specielle Pathologie und Therapie, by Nothnagel, 1901. It is due principally to deficient alimentation and wretched hygiene.

personally investigated by her, found 516 people at work—315 females and 201 males. Foot-power sewing machines were used in all but 5 shops. The hours of work were more than 10 in 9 shops and less than 10 in only 3; 11 of the 34 shops were in rear tenements or had alley frontage, and 2 were in basements; 5 of the shops were badly crowded and 6 were filthy. The ventilation was bad in 23 shops and good in only 3. The light was poor in 7 shops and good in less than $\frac{1}{2}$ of the whole number. Many had diseased eyes. Almost invariably, especially among the Hebrews, the men and boys were smoking cigarettes whether there were girls in the room or not. In the Polish shops the ventilation in the winter was dreadful, all the windows being kept tightly closed to keep down the coal bill. Adequate or proper sanitary accommodations in the shops or on the premises were quite the exception. Often the closets were totally unfit for use.

In time of epidemic the danger to the public health from the tenement-house manufacture of garments is menacing. There are so many shops that it is impossible to inspect them all at any such time to find whether garments are being made where disease exists.

According to the statement of one of the trustees of the Chicago United Hebrew Charities, tuberculosis is the great bane of the garment workers, 1 out of every 25 workers suffering from it. The damage to the eyes of these people is one of the worst features of the whole question. The author quotes from the 1893 report of the Illinois Factory Commission as follows: "In one of the basement shops, where the air was almost unbreathable, 15 girls under 16 years of age were working. Eight of these, on being examined, were found unfit for work from spinal curvature, tuberculosis, irregular development and other ailments."*

The sweatshop problem is a corollary of the greater one, the density of population. Newsholme²⁵ says: "A high degree of density of population is not necessarily associated with a heavy infantile deathrate. The direct consequences of close aggregation (such as fouled air, soil, and often water) and the easier spread of infectious diseases are probably as nothing in comparison with its *indirect* consequences or concomitants. The more crowded a community, the greater as a rule is the amount of abject want, of filth, of crime, of drunkenness and other excesses; the keener is the competition and the more feverish and exhausting are the conditions of life. Moreover—and perhaps more than all—it is in these crowded communities that almost all the most dangerous and unhealthy industries are carried on. It is not so much the aggregation itself as these other factors which are associated with aggregation that produce the high mortality of our great towns or other thickly populated areas."—(Quotation from Supplement to Forty-fifth Annual Report of the Registrar-General of England.)

Newsholme says further: "The number of rooms occupied by each family is of much greater importance in relation to health than the number of persons living on a given area; a fact that throws important light on the state of each tenement house as regards overcrowding. In the Peabody buildings the average number of persons per room is 1.8. Given houses properly con-

* Hon. Carroll D. Wright, Chief of the U. S. Bureau of Labor Statistics, says:

"We hear a great deal about the sweating system, and the popular idea is that the sweating system is the product of modern industrial conditions. The fact is, that it is a remnant of the old industrial system. It is the old hand system prior to the establishment of the factory. Just as fast as the sweatshops are developed into the factory and brought under the laws which relate to factory regulation, just so rapidly is the sweating system being eliminated. The only cure is to improve the sweatshop into the factory. The social life of sweaters can be improved only by lifting them to the grade of factory operatives."

"The experience in the South is simply that of other localities, whether in this country or in England. The factory means education, enlightenment, and an intellectual development, utterly impossible without it—I mean to a class of people who could not reach these things in any other way. It is an element in social life. By its educational influences it is constantly lifting the people from a lower to a higher grade."—Abst. in *Literary Digest* Nov. 10, 1900.

structed and drained, and given cleanly habits on the part of the tenants, increased aggregation of population on a given area has no influence in raising the deathrate except in so far as it is accompanied by overcrowding in individual rooms—an event which is by no means necessary under the circumstances named.

In other words, there is no causal relationship between density of population, *per se*, and a high mortality.

The true index of density is the number of persons to each occupied room.

From the report of the New York Tenement House Commission, 1900, one gathers that of the 3,437,202 inhabitants of New York City, 2,372,079—or more than $\frac{2}{3}$ —live in tenement houses, as these houses are defined by law. In Greater New York there are 82,652 of these buildings. Adequate light and air, perfect sanitation, even passable home environment, cannot be provided by the best tenement house which is commercially possible on Manhattan Island. The tenement house districts of New York are places in which thousands of people are living in the smallest space in which it is possible for human beings to exist. Crowded together in dark, illventilated rooms, many of which the sunlight never enters, they are centers of disease, poverty, vice and crime. The marvel is, not that some children grow up to be thieves, drunkards or prostitutes, but that so many should ever grow up to be decent and self-respecting. All the conditions which surround childhood, youth and young womanhood in New York's crowded tenements make for unrighteousness and disease. But the most terrible of all the features of tenement house life in New York is the indiscriminate herding of all kinds of people in close contact; the fact that, mingled with the drunken, the dissolute, the improvident, the diseased, dwell the great mass of the respectable workingmen and their families.

Our indulgence of the sin of quackery, antiism, nostrum-vending, unchristian unscience, and medical crankery generally, is an awful expense in money and lives to the American people. Dr. Jacobi (*Journal American Medical Association*, August 25, 1900) estimates that we spend \$200,000,000 annually on nostrums, and that is a small part of the backward pull upon medical progress. Our present indifference to the lethal debauchery of such idiocies as Eddyism, Dowiesm, anti-vaccination, etc., is to be paid for in millions of lives. These barbaric and immoral atavisms are prolific breeders of the scourges of God, and they prevent a tremendous reduction of the deathrate. May they speedily whip us both into sanity and sanitation! But it is likely to be a slow process, largely because of the degrading influences of quack-favoring, medicine-hating yellow journalism. I read in the *Chicago Tribune* the other day an editorial filled with malevolent and ignorant abuse of medical ethics, because we individual doctors do not advertise our ability to cure disease in the daily papers.

Everywhere when we look into history, into medical literature, or into the actual life about us, we find that all problems of relieving the suffering and expense of disease and of death resolve themselves wholly or in great part into two causative hindrances, sin, and the public indifference to sanitation and the laws of health. As this indifference is itself a sin, one might almost let the one word stand for the one cause. The people demand of us the individual cure of the results of their sin, they are incomprehensively reckless of the duty of preventing the result. They rush into the *peccati*, and then beg us to help them escape the *flagellum Dei*. Hence as a profession our transcending obligation is to continue our thankless task, pursued by us with astounding heroism in the face of opposition and ingratitude, to prevent the evils the people love.

One of the strangest proofs of the public indifference to the value of life is that but one of our 3,828 American millionaires (thank God for *him!*) cares a fig for preventing disease and death. They gave over \$60,000,000 last year for a thousand less needed charities, but, so far as I

can learn, not a dollar for preventive medicine or sanitation. And this in the face of the demonstration made by our Health Boards* of their power to lessen the deathrate. The absolutely splendid result of a deathrate of only 12.04 for the week ending June 22, of the great city of Chicago, is almost beyond belief. Within a few years, in an American city of about 400,000 inhabitants, one man alone, by the well-known methods of hygienic reform, has reduced the mortality about one-third, *i. e.*, from about 18 to about 12, and yet this man, who saves 24,000 lives a year, goes on with his marvelous work, unknown and unhonored. If the city of New York should pay him a salary of five million dollars a year, and give him the power to carry out his aims, he would save that city an annual loss of many millions of dollars. Science, it is plain, has outrun morality; we know how to lengthen the average human life by many years, with a proportionate reduction of all the suffering and expense, but we are powerless to do it because, simply, of sin. There is no doubt that sin alone prevents a reduction of the deathrate and sickness by one-half, and a lengthening of life to 50 or 60 years. And we have nearly or quite reached the limit so far as the art of therapeutics is concerned. We can never cure a much greater proportion of the sick until we have better bodies and souls in the patients. The great progress of the future in medicine will consist in prevention. We must lose our life to find it. There are about 1,500,000 deaths annually in the United States—at least 500,000 more than there would be if we could carry out sanitary reforms of proved efficacy. Each wasted life is worth at least \$1,000. That is a useless squandering of \$500,000,000 worth of life. But, according to Dr. Farr, the world's greatest vital statistician, for every death there are, on the average, 2 years of illness in the community.† Add the cost of this, and we have another \$500,000,000 to the bad.

Let us make up a table of the total actual expense of sickness and death to the people of the United States:

Lives of 1,500,000 at \$1,000 each	\$1,500,000,000
Burial expenses of 1,500,000, funerals at an average of \$100.00 each	150,000,000
Loss of wages of 3,000,000 years of illness (2 years for each death) at average annual income=\$300	900,000,000
Yearly income of 110,000 physicians at \$1,500 each	165,000,000
Four thousand hospitals and dispensaries, average annual expense \$25,000	100,000,000
Appliances, instruments, etc., medicines and prescriptions, \$1,000 each for 110,000 physicians	110,000,000
Values of gratuitous and paid services rendered by staffs of hospitals, etc	30,000,000
Services of 30,000 nurses at \$750 annually, Total, exclusive of cost of public hygiene and sanitation by cities, States, and the National Government	22,500,000
	\$2,977,500,000

*Robert Fletcher, Ph. D., (*New Hampshire Sanitary Journal*, May, 1898,) says that Boards of Health are not popular. As a branch of the executive government they do not enjoy the confidence and goodwill of all sorts of people. Local boards of health find that some of their most conscientious and praiseworthy efforts for the public welfare are met by prejudice, opposition—even to open resistance in some cases—and not seldom by unjust personal resentment against the individual member. The popular feeling may be characterized as one of impatience at what too many look upon as *meddlesome interference with private rights*. [As one of our orators has said “we are suffering from too much personal liberty in this country.”]

†The great ends of sanitary work are diminution of disease and prolongation of human life. The actual magnitude of the losses due to impaired health is stated as follows by the Imperial Board of Health of Germany. The estimate is made from the statistic returns of the workingmen's clubs. In 1891, out of a total membership of 6,500,000, there were more than 2,000,000 cases of sickness; averaging 17 days duration. These clubs paid out for medical attendance nearly \$22,000,000. Since it is safe to assume that among the remainder of the German population 24,000,000 of whom are old enough to work, the cases of illness are quite as numerous and protracted as among the insured club members, the expenses of sickness among the working classes in Germany in one year is not reckoned too high at \$120,000,000. This does not include the loss by wages. (*Gesundheitsbüchlein*, 1896. Abstract in *American Year Book Medicine and Surgery*, 1898.)

These stupendous figures, three thousand million dollars, and they are conservative ones, fully justify the demand, which should, on the part not only of the profession, but of every intelligent voter, become a command for the establishment of a National Bureau of Health, with a Cabinet officer at its head. The figures are very much larger than they need be, and such a Bureau would easily save a thousand times its expense. The saving or the loss of money is, of course, not a consideration. I have adopted this method of stating the fact in order to bring it home to our imaginations. It is, of course, the saving in life and its expense which the numbers represent, that is aimed at. Thus we have a double warrant as good physicians and as good citizens for joining in social movements to bring about a better civilization. There is no prevention of disease without stifling the causes of disease. Wherever sin exists it works itself out finally in sickness and death. The man who says his sole duty is to cure disease, not to bother about sin or society, is a bad physician, and a poor citizen. In a hundred ways he can influence his neighbors and his nation to lessen disease and death, besides by what the textbooks call therapeutics. The best therapeutics is to render therapeutics unnecessary. In this saving of life and preventing sorrow is therefore reckoned the extinguishing of our own curative and professional function. This, despite the furious hatreds of the antimedicals of a thousand kinds and degrees of

shamelessness, is precisely that for which we are giving our lives and labors. Our highest aim and delight is to work for our own economic undoing, that is, for professional suicide.

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